



## INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

***E. coli***[www.idem.IN.gov](http://www.idem.IN.gov)Mitchell E. Daniels, Jr.  
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**Description:**

- Coliform bacteria are organisms that are present in the environment and in the waste of warm-blooded animals and humans.
- *Escherichia coli*, or *E. coli*, is a common example of coliform bacteria. The presence of coliform bacteria in drinking water indicates an increased likelihood that other organisms may be present.
- There are several types of *E. coli* bacteria, most of which are not harmful. Only a few strains of *E. coli* are pathogenic, such as *E. coli* 0157, commonly associated with food poisoning.
- During rainfalls, snow melts, or other types of precipitation, untreated sewage containing *E. coli* may wash into creeks, rivers, streams, or lakes. People may be exposed to elevated levels of *E. coli* when these waters are used for recreation or as a source of untreated drinking water.
- There are many pathways through which *E. coli* can enter and contaminate Indiana water:
  - Combined sewer overflows (CSOs) – More than one hundred (100) Indiana communities have wastewater systems that transport sewage and storm water through the same pipes. When it rains, those systems can become overburdened and release excess storm water and untreated sewage into nearby waterways. To date, nearly eighty (80) communities have begun implementing a plan to control CSO discharges or are in a legally binding agreement with the Indiana Department of Environmental Management (IDEM) to do so.
  - Septic systems – When septic systems fall into disrepair or reach capacity, the sewage can leak into nearby waterways. Because of this, the absorption field, or area over which the discharged sewage is dispersed into the ground, should be located away from waterways and wells.
  - Straight pipes – Some individual homes or subdivisions have pipes that transfer untreated waste directly from septic tanks to a river or lake. This illegal practice should be corrected and is punishable by fines if continued.
  - Wildlife – Ducks, geese, deer, raccoons, and other fauna living on or near water can contaminate waterways with *E. coli*.
  - Urban and agricultural run-off – Pets and farm animals generate waste, which, if handled or stored improperly, can end up in waterways.

**Environmental and Health Impacts:**

- People can be exposed to harmful *E. coli* by consuming undercooked meat that has been contaminated, unprocessed dairy products, and unwashed vegetables.
- In addition, people can be exposed to *E. coli* through poor personal hygiene practices or contaminated water (i.e. drinking water from an improperly constructed or poorly maintained well).
- Ingesting significant amounts of *E. coli* may cause severe diarrhea and abdominal cramps.
- Swimming-related illnesses are typically minor and require little or no treatment, respond readily to treatment, and have no long-term health effects. The most common illness associated with swimming in contaminated water is gastroenteritis, which can cause a variety of symptoms, including nausea, vomiting, abdominal cramps and pain, diarrhea, headache, and fever.
  - Other minor illnesses associated with swimming in contaminated water include ear, eye, nose, and throat infections.

- For people with compromised immune systems, children, and the elderly, *E. coli* bacteria can have serious, long-term health effects.

### **IDEM's Role:**

- IDEM is responsible for protecting human health and the environment while providing for safe industrial, agricultural, commercial, and governmental operations vital to a prosperous economy.
- IDEM sets water quality standards for safe bacteria levels, requires wastewater discharge permits, and monitors non-point source runoff.
- IDEM's Office of Water Quality periodically tests *E. coli* levels in waters throughout Indiana to assess bacteria levels in rivers and streams.
- IDEM uses this assessment to help local entities develop pollution reduction plans to address *E. coli* contamination originating from non-point sources, such as parking lots, riverbanks, and fertilized fields.
- IDEM requires drinking water and wastewater systems to conduct tests to regularly monitor bacterial levels in surface and drinking waters.
- IDEM maintains a searchable database of drinking water quality reports submitted by each community water system in Indiana.

### **Citizen's Role:**

- There are a number of actions every citizen can take to reduce *E. coli* contamination in the environment:
  - Regularly inspect your well to ensure that there are not pathways for surface water to enter the well, such as a cracked casing or missing cap.
  - Properly dispose of pet waste, which can contain bacteria, viruses, and parasites, and contaminate the environment.
  - Have your septic tank regularly checked and emptied to prevent overflows or leaks.
  - Do not feed shorebirds. Feeding shorebirds increases waste along shoreline and can contribute to water contamination.
- There are a number of actions every citizen can take to reduce their exposure to *E. coli*:
  - Thoroughly cook meat before consumption;
  - Thoroughly wash vegetables before consumption;
  - Avoid consumption of unpasteurized dairy products;
  - Wash hands and surfaces carefully when preparing food.
- There are several actions every citizen can take to reduce their exposure to *E. coli* at the beach:
  - Find out which beaches are regularly monitored and have posted advisories. Exposure to polluted water is less likely at regularly monitored beaches.
  - In areas not monitored regularly, choose swimming sites in less developed areas with good water circulation.
  - Avoid swimming at beaches with visible discharge pipes or at urban beaches after a heavy rainfall.

### **More Information:**

- For more information on *E. coli* and IDEM's water quality monitoring programs, visit IDEM's Web site at <http://www.in.gov/idem/4677.htm>.
- For information on Indiana Lake Michigan beach monitoring, visit IDEM's Indiana BeachGuard Monitoring System Web site at <http://www.in.gov/idem/4151.htm>.
- For information about the quality of your drinking water system, consult the annual water quality report produced by your local water system. Water quality data and reports are available by searching IDEM's Drinking Water Facility Database at <http://www.in.gov/idem/5095.htm> or the Environmental Protection Agency's (EPA) Web site at <http://yosemite.epa.gov/ogwdw/ccr.nsf/Indiana?OpenView>.
- For information on home water testing, private well disinfection, and annual compliance reports, visit IDEM's Web site at <http://www.in.gov/idem/5093.htm>.